

Further Observations on Planariæ. By J. R. Johnson, M.D. F.R.S.
Read March 10, 1825. [*Phil. Trans.* 1825, p. 247.]

In an account of some species of Planariæ, published by Mr. Dalzell of Edinburgh, that gentleman observed, that in one of these insects which he had intentionally wounded a little below the head, an unnatural prominence soon appeared at the wounded part, which in about four weeks assumed the characters of a new head, and was soon after very distinctly recognised as such.

Anxious to verify so singular a result, Dr. Johnson took 100 active *Planaria cornuta*, and made in each an incision on the side of the body. In one instance only he obtained the desired result, in most of them the wounds healed. In some, præternatural excrescences took place, and others separated at the place of incision to become two animals. One only acquired a double head. It appears, therefore, to be so unusual an occurrence as to deserve the attention of the Royal Society.

Dr. Johnson proceeds to some additional observations respecting the propagation of certain species of this curious tribe of insects. In regard to the *Planaria cornuta*, he found that they were more rapidly reproductive by the detachment of fragments when kept singly than when several are preserved in the same vessel, owing, he says, to the necessity then existing of continuing the species; hence he also infers, that the regenerative process is voluntary. The Planariæ kept together, ultimately threw off as many reproductive portions as the others, and these he thinks may probably amount to about 20 in eight months for each insect. The smallest visible portion detached from the tail becomes a perfect Planaria, but in this case the animal is so small as to suggest the probability of the parent animal being viviparous.—Dr. Johnson concludes this paper with some observations on the *Planaria nigra*, the details of which are illustrated by an annexed drawing. Like the species formerly described, it is furnished with an abdominal proboscis, by which it takes its food; it is oviparous, each producing from 2 to 6 young; it does not spontaneously divide into regenerative portions like the *Planaria cornuta*, but has an equal power of repairing mutilated parts.

On the Influence of Nerves and Ganglia in producing Animal Heat.
By Sir Everard Home, Bart. V.P.R.S. presented by the Society for
the Improvement of Animal Chemistry. Read March 17, 1825.
[*Phil. Trans.* 1825, p. 257.]

Sir Everard begins this paper by adducing several instances of the existence of brain and nerves in animals, which however have no power of generating heat; this is the case with the Oyster, the Snail, and the Water-muscle. In the Leech, the Earthworm, and the insect tribe generally, the nervous filaments are united at intervals by ganglia; and where these exist, the temperature exceeds that of the atmosphere when below 56°, though in very different degrees, the

excess in the leech being only 1° ; while in a hive of bees it is 26° . These circumstances induced the author to inquire whether any parts of animals possessed of an unusual temperature were devoid of nerves: the heat of the deer's horn while inclosed in its velvet, was found in the month of June, when only one foot long, to be 96° , and in July the top of the antler was 99° ; the power therefore of generating heat was here so evident, independent of any direct influence of the brain or heart, that it was only necessary to ascertain whether nerves accompanied the blood-vessels, and they were found to do so very numerously. To ascertain how far animal heat was under the control of the ganglionic nerves, the trunks supplying the velvet of one horn of the deer were divided, while those of the other were left entire; and the result was, that on the first day the temperature fell 12° short of that of the latter; on the second day 26° ; on the third day 17° ; on the fourth day 8° ; and on the fifth 2° . Forty-eight hours after the division of the nerves, the temperature of the horn fell to within 3° of that of the atmosphere, but the animal having bruised the horn, the diary was discontinued on the sixth day, and it was then hotter than that of which the nerves were entire; and although the nervous trunk had not reunited, it was evident that some other connection had been formed between the nerves of the horn and head. The author next adverts to the abundant connexion of the placental nerves with ganglia, as described by Mr. Hawkins on a former occasion. This led him to suspect that the uterus might under particular circumstances of excited action, possess peculiar powers of generating heat; and he was informed upon inquiry of practitioners in midwifery, that they sometimes found in turning children, the heat almost as great as the hand could endure. Sir Everard then details the results of some experiments in relation to this subject, which were furnished by Dr. Granville, showing that in certain cases of difficult labour, the temperature of the uterus rises as high during the violence of the pains as 120° ; and to prove that mere muscular action is not the cause of this production of heat, he observes that the temperature of the heart of a dog in full action is only 101° , and that in certain cases of apoplexy the body becomes alternately hot and cold, the pulse undergoing no variation in its frequency.

Sir Everard concludes this communication with some remarks upon the relation between the proportion of ganglionic nerves and that of temperature above the surrounding medium in certain fishes, and observes that they always appear to bear a direct proportion to each other. He also notices the enormous supply of nerves sent to the electric organs in the *Gymnotus* and the *Torpedo*, which, however, are productive of no remarkable increase of temperature, being entirely free from, and unconnected with, any ganglionic arrangement. He also suggests the probability of the ganglionic nerves being those which are principally affected in all diseases attended by a considerable elevation of heat beyond the natural standard.